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Contents for Week of April 15, 1929. Vol. VIII. No. 8.

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BRINGING IN THE PEARL OYSTER HARVEST: CEYLON

(See Bulletin No. 3)

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Tarbes: the Home Town of Foch

TARBES is in mourning, sorrowing at the death of its most famous citizen, Marshal Foch, supreme commander of the allied armies in the World War.

A city of scarcely more than 2,500 inhabitants, Tarbes already bids fair to become a popular shrine. The modest home in which Marshal Foch was born is the object of numerous pilgrimages and few of the thousands who annually visit the Lourdes Grotto, a short distance to the southwest, fail to stop in the World War leader's home town.

Tarbes has often been likened to Venice. Small channels that branch off from the Adour River pass through the town. Their murmur never ceases as they flow through beautiful parks and gardens, making the city a beauty spot. Townsmen seem to take pride in Tarbes' attractiveness. Everyone who has a few feet of ground about his home plants it in fruit trees or flowers.

Another Famous Son Gave Tarbes a Public Park

The Jardin Massey, a 35-acre park in the northern part of Tarbes, was a gift of an illustrious son, long before city planning made parks a municipal necessity. Massey, after whom the park is named, left Tarbes for Holland as an humble gardener. He eventually became manager of the Dutch Royal Gardens and was later called by the French King to Versailles. After making a fortune at his profession, he returned to Tarbes and established the park which bears his name. Still another native son of Tarbes is recalled as one visits the museum and cloister in the park where a bust of Theophile Gautier is mounted.

The climate of Tarbes is excellent for landscaping, and the rarest of exotic trees grow to large proportions there. Sequoias and Himalayan cedars vie with one another.

The plain about the Tarbes is fertile and verdant. Those inhabitants who are not employed in the tanneries, mills, tile works and large government arsenal located there, farm, raise cattle, and tend their vineyards. Snow-clad peaks of the Pyrenees give the plains a spectacular background. The precipitous and rugged heights of Pic du Midi de Bigorre stand out boldly against the lesser mountains.

Foch, Like Many Citizens of Tarbes, Was a Basque

Throughout the country, young colts prance about the fields, for Tarbes is a haven for horses and horse lovers. Here the French breed their cavalry mounts which are kept in immaculate airy quarters and groomed with greatest care. The Haras, as the breeding establishment is called, was established by Napoleon in 1806, when he, fearing his fighting horses were deteriorating in breed, introduced English and Arabian blood. The mares and colts are boarded on the various farms, which accounts for the wide distribution of the young equine "aristocrats."

Tarbes' fairs are noted. Its market days present a memorable picture. Women from the countryside set up their booths, shaded by gaudy umbrellas, in the Place Maubourguet. A bustling swarm of humanity surges back and forth, some buying, some just looking. Next morning the Place is bare. Not even a lettuce leaf can be found as a reminder of the day before.

Many of Tarbes' inhabitants are Basques, a people whose origin and language have been a puzzle to scholars. Nor are the Basques themselves able to help in the solution. Romans, Goths, Franks, Moors, Spanish and French have, at one time

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A PEARLING CREW AT WORK

While most of the waters surrounding Ceylon produce pearls, the most important fishery is in the Gulf of Manaar, an indentation between the island and the southern apex of the Indian peninsula. Note the flat stone in its rope stirrup (left foreground), which the diver uses to aid him in his descent (See Bulletin No. 3).

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Hawaii Debates Moving Leper Colony from Molokai

THE LEPER colony on Molokai is the subject of discussion in the Territory of Hawaii.

Some citizens urge that the colony be moved from the isolation of Molokai to a new reservation on Oahu. They argue that medical discoveries and the finding of chaulmoogra oil have made leprosy a less dangerous disease, therefore the inmates of the colony should be brought in closer touch with civilized communities. Some of the members of the colony have protested, declaring they are quite comfortable in the isolation of their Molokai sanitarium.

After a search of years for a palliative for leprosy, Joseph F. Rock, an explorer for the National Geographic Society, who now heads one of its expeditions in China, found the chaulmoogra tree in Burma. And the oil of that tree has helped to arrest the dread disease which was feared as far back as Biblical times and has been a scourge through the ages.

"The Man Who Shut with His Own Hands the Door to His Sepulchre"

Within two years after the introduction of the oil in the treatment of cases, nearly two hundred lepers were discharged from the leper-receiving station in Honolulu and from the main settlement at Kalaupapa, on the island of Molokai.

Even before the introduction of chaulmoogra oil, the world's sympathy had gone out to the lepers on Molokai, and Father Damien, described by Stevenson as "the man who shut with his own hands the door to his sepulchre," won fame for his ministrations to the afflicted. Father Damien was a Belgian missionary who went out to the colony in 1873, founded schools, improved housing conditions and made the colony a happy and habitable settlement. Shortly before his death in 1889 he contracted the disease and thereafter he usually began his talks with "We lepers."

Molokai is the fifth in size of the Hawaiian Island group, with an area of only about one-fifth that of the State of Rhode Island. It lies to the northwest of the Island of Hawaii, with the larger Maui intervening. It is charming in its scenic beauty but it presents a forbidding aspect to aviators. On its eastern end it is extremely mountainous. Rocky headlands project into the sea, leaving almost no beach, and one peak, Kamakou, rises to nearly 5,000 feet.

Leper Colony Can Be Reached from Land Only Over a Narrow Path

The leper colony occupies only a restricted area and is so isolated that hunters or travelers are in no danger of contracting a disease which is better understood on Molokai than in other parts of the world. It occupies a triangle of land, once the site of a lava flow, and is accessible from other parts of the island only by a tortuous path which is easily guarded.

Privileged visitors may hunt the deer which are found on the lower slopes of Molokai, but the chief game, fit target for the sturdy hunter, is the wild goat, more numerous but nearly as crafty as the almost legendary *mouflon* of Corsica. Maui seems a near neighbor and to the northwest the misty mountains of Oahu separate blue sky from blue sea. In the shallow water at one's feet the lines of ancient fish ponds can be seen as though from an airplane. Their walls have long since fallen below the waves and shore fishing is now the rule. Coral reefs, which protect the southern shore, have formed several harbors adequate for local boats.

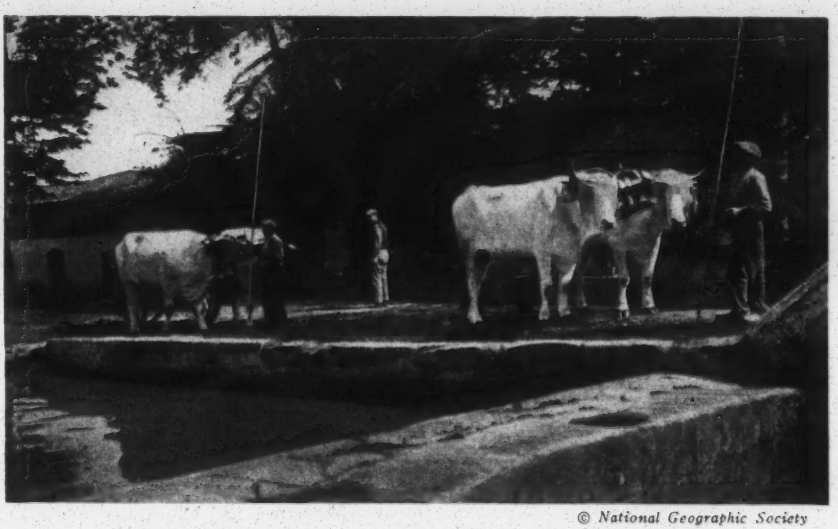
or another, tried to conquer them, but they remain unto themselves, an independent race, although subjects of the nations in which they live. Nobody has been able to break their spirit. Frenchmen, to the Basques in the French Pyrenees, are foreigners, as are Spaniards to those Basques who live on the Spanish side of the range.

Scene of Victory by Wellington Over French

According to Dr. Edwin A. Grosvenor's "The Races of Europe," Marshal Foch is a typical Basque, and Ignatius Loyola, founder of the Jesuit order, was a Basque.

Turba, which was near the present-day Tarbes, was the capital of a Roman state. Tarbes is mentioned as a bishopric as early as the fifth century. Later in history it appears as a sufferer from the religious wars of the sixteenth century, and as the scene of a victory by Wellington over the French in 1814.

Bulletin No. 1, April 15, 1929.



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A SCENE FOR THE BRUSH OF A BONHEUR, NOT FAR FROM TARBES

France has produced several breeds of excellent cattle, famed for milk-production and beef qualities. Whether at work in field or road, their presence often lends an added charm to a rural landscape. These owners wear the *beret*, a type of headgear which has recently come into vogue in the United States.

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Billions in Precious Stones at Home and Abroad

FOUR billion dollars worth of diamonds!

$4,000,000,000. That is the estimated value of diamonds owned in the United States. The sum is equal to one-fifth of the nation's outstanding debt.

Although the American people are rich with diamonds the gems are so widely distributed that few collections of precious stones rank with foreign jewel treasures.

The Turkish crown jewels, for many years hidden in the Green Vaults of Constantinople, are among the world's largest collections. The Sultan's throne is of massive, beaten gold, studded with diamonds, rubies and emeralds set in mosaic. It has been appraised at more than $15,000,000.

The Sultan's Tankard Gleamed with 3,000 Diamonds

Few travelers have ever been admitted to the treasure room to see the jewels and only recently have photographers been permitted to take pictures of the collection. There is another throne of ebony and sandalwood, inlaid with mother-of-pearl, rubies, emeralds and sapphires; a toilet set thickly studded with turquoises and diamonds; and armor, pistols, saddles, sandals, scimitars, turbans, daggers, swords and canes all bejeweled, not to mention the long strands of pearls as large as cherries, rings, bracelets, anklets, and all sorts of other gorgeously designed jewelry for various uses.

One wonders if the old Sultans were thrilled to drink out of the tankard gleaming with 3,000 diamonds and to eat from a salad bowl containing a half bushel of unset stones. One of the world's largest emeralds, as large as a man's hand, is included in the collection.

Since the Tsar was overthrown the Russian crown jewels, now in Moscow, have been in the spotlight with rumors of their sale. Some authorities claim the Russian horde is the world's richest. The head of the Tsar must have dazzled with 32,800 carats of diamonds and rows of pearls when he wore his best headdress at royal functions.

British Crown Jewels on Exhibition, But Carefully Guarded

The famous Shah diamond which formerly hung in front of the Peacock Throne when it was in possession of the Emperor of India, is in the Russian collection and scattered here and there among the gorgeous array are diamonds as big as walnuts, rubies and emeralds as large as pigeon eggs, inlaid golden plates, bejeweled wall hangings, robes, swords, scepters, pendants, canes, staffs, religious emblems and tapestries. The famous Orloff diamond reposes in the handle of Catherine the Great's scepter.

The brightest spot within the grim gray walls of the Tower of London, if not in London itself, is the jewel room where the crown jewels of Great Britain are on exhibition. To reach the large glass case which incloses the gems, one has to run the gantlet from the dignified "beefeaters" (yeomen of the guard) to some of the picked guards of the Empire. And should a visitor attempt to take one of the gems he likes most, he would find that an unseen steel safe would immediately encase the treasures, the door behind him would become fast, and the outer gate of the Tower walls would clang shut to avert his escape. Appraisers admit that $30,000,000 is a low estimate of the value of the royal jewelry.

Molokai lies midway between the large island of Hawaii and the island of Kauai, the northernmost large island of the group, where the crew of the long lost seaplane PN 9—No. 1 landed.

Kaiwi channel lies between Molokai and Oahu, on which Honolulu is situated. The channel, free of obstructions, is about 22 miles wide.

Bulletin No. 2, April 15, 1929.

© *Photograph by Henry W. Hensnaw*

SPEARING FISH IN THE HAWAIIAN ISLANDS

Molokai is the fifth largest of the Hawaiian Islands. While it is famous for its leper colony, that reservation occupies only part of the area of the Island. Prosperous farms yield products on Molokai as well as on the other islands of the Territory.

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Phosphorescence That Lights the Sea at Night May Be Brought to Our Living Rooms

AN AMERICAN scientist predicts that "living lamps" will some day replace electric lights in our homes.

Important progress has been made in the study of the "fire" of fireflies, and other luminescent creatures and materials. Creation of artificial fireflies that never go out has been brought nearer, the scientist said, by recent studies of the substances that supply cold light to many forms of animal and plant life.

Luminescence Better Term Than Phosphorescence

Phosphorescence bright enough to make newspaper headlines readable is occasionally met with on the high seas. The ghostly, eerie fire of the waves has nothing whatever to do with the phosphorus used by the match industry.

Although sea water contains salts of phosphorus, called phosphates, it has no free, uncombined quantities of the element. Luminescence, the name preferred by recent investigators, is a better term than phosphorescence since the light is largely the result of the oxidizing, or burning, of minute particles of dead animal and vegetable matter, the oxygen being derived from small amounts dissolved in sea water.

"Sea Fire" Often White But May Be of Other Colors

In addition there is a phosphorescence, or luminescence, of living organisms. Several varieties of photophyta, tiny, single-cell plants that float on the surface of the water, diffuse the dull glow called "milky sea" in the Far East, or "white water" of the Gulf of Aden. Certain forms of bacteria are also luminescent, and are often visible on sand and on fish cast up by the sea. This glow is not due to decay, because when decay sets in the luminescence ceases.

Some forms of sea fire are highly incandescent, giving off an intense, almost white, light. Sometimes it is difficult to believe that one would not have one's fingers burned by touching it. Others are golden yellow, blue and even red and green, giving weird, uncanny effects on dark nights. It may have been from some such inspiration that Coleridge drew the "atmosphere" for "The Ancient Mariner."

Organisms Flare Brightly When Disturbed by Passing Fish

Norwegian fishermen distinguish between two kinds of the phenomenon: "dead phosphorescence" and "fish phosphorescence." The former resembles stars in a clear sky, myriads of tiny, nearly invisible points emitting a scintillating light; now increasing, now decreasing, in intensity. "Fish phosphorescence" consists of great bubbles of light caused by fish running through the water. The fish disturb minute phosphorescent organisms, which flare up suddenly in response to the irritation produced.

It is the latter variety that so delights the visitor to strange lands and waters. It is this phosphorescence that gives the midnight wave tops their brilliant sparkle as they break on the shore, or bathes the oar in a magic glow as it ruffles the surface, or leaves the cometlike track of the stone dropped into the water.

Bulletin No. 4, April 15, 1929.

One of the most striking pieces is Queen Mary's crown. Lying on a white satin pillow, it scintillates with many jewels including the famous Kohinoor (Mountain of Light) diamond. Some of the smaller diamonds were cut from the Cullinan, the largest diamond ever found. In the rough it weighed 3,034⅝ carats. The Kohinoor is believed by the Indians to bring an evil spell upon a masculine owner, hence it is Queen Mary's stone.

Heavy the Head That Wears the English Crown Weighing Five Pounds

Fortunately the King wears the Crown of England but a few minutes during his coronation ceremony. It is a magnificent creation weighing five pounds—somewhat heavy for comfortable headdress. Its golden form is nearly hidden by diamonds, rubies and sapphires. The King's crown, of lighter weight, contains the Black Prince Ruby and beneath it 700 diamonds cut from the Cullinan stone. The crown of Queen Victoria, also on exhibition, sparkles with 3,000 diamonds, 341 pearls and many sapphires in an arch over a purple velvet form, while atop is a mound of 548 diamonds and a cross with four large sapphires and four diamonds.

The Princes of India have been collecting jewels for thousands of years. It was from India that the famous Peacock throne was taken to Teheran, Persia. Shah Jahan, one of the great Indian Moguls, daily sat on this solid gold four-poster seat, dispensing justice. The monarch's back rested against rubies, emeralds and sapphires which adorned the peacock's tail, while overhead was a pearl-fringed canopy. His turban blazed with diamonds, his chest was hidden by ropes of pearls, and his fingers literally were wrapped in gold and precious stones.

The Carpet of Pearls, in the Nuzerbagh Palace at Baroda, is one of the world-famous jeweled creations. It is 8 by 6 feet square. Besides the pearls which form the larger part of the carpet, there are 3 large diamonds, 32 small diamonds, 1,269 rubies and 569 emeralds which form a flower design in the center. Imagine an Eastern potentate sitting on the gorgeous Peacock Throne with his shoulders nearly stooped under the weight of pearls, his legs and arms arrayed in golden jeweled bracelets and anklets, his head crowned with as many stones as some jewelers handle in many years and with a Carpet of Pearls hanging before him.

King's Ransoms in Jewels Flash at Indian Celebrations

The Gaekwar of Baroda is said to have the largest collection of pearls and the Maharajah of Indore runs a close second. A royal wedding or state function attended by the Indian Princes serves as an excuse for the display of jewels worth many millions of dollars. At one royal wedding the Maharajah of Indore wore a scarf of pearls valued at $3,500,000. Eighteen of the pearls were set with carat diamonds. This potentate also has one of the most bejeweled turbans in India which is a mass of rubies, emeralds and diamonds.

Among the famous jewels the Cullinan stands out as the largest diamond. The Excelsior is second largest, weighing 971 carats in the rough. The Orloff diamond is a 193¾ carat gem. The Hope diamond, which is owned by an American woman, weighs 67⅛ carats. The Regent diamond weighs 136⅞ carats. It was formerly a French crown jewel. The "Star of the South," a 125½ carat stone, now is owned by the Gaekwar of Baroda.

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Brook Trout, Presidential Favorite

IT MUST be Trout.

That was the word that went out when the selection of a fishing preserve for President Hoover was first mentioned.

Bass would not do. The President likes to fish for Trout, so two streams have been made available to him, one in Maryland and one on the edge of the Shenandoah National Park in Virginia.

Brook Trout the Favorite Game Fish of America

Brook trout are the native monarchs of these presidential streams. Rainbow Trout of the Western States have been introduced into Eastern streams but the native variety continues to rule the swift waters of the Appalachian Highlands.

The Brook Trout's story is told in "The Book of Fishes" of the National Geographic Society:

"The Brook Trout is the favorite game fish of America. Originally found from Labrador westward to the Saskatchewan and southward along the Alleghenies to Georgia, it has been carried by fish-culturists to the Rockies, the Sierras, the upper Mississippi Valley, and wherever rapid streams of suitable temperature are found. It has almost disappeared from lowland streams in the north, which have become unsuited to it as a result of deforestation and water pollution.

Fish Culturists Have Raised Trout for Many Years

"The Brook Trout persists in small coastal streams where the conditions favorable to it have not been disturbed, and it often descends to brackish water. It will live in streams having a summer temperature as high as 70 degrees, provided they have swift currents.

"Trout culture in America dates back to the early fifties. Fish culturists raise great numbers of Brook Trout, both for market and for distribution in small artificial ponds, by feeding the fishes and caring for the eggs in hatchery troughs provided with flowing spring water.

"The instinct to move upstream is very strong in young Trout; when a miniature 'fishway' with its stairs of tiny box pools is connected with a hatching trough, they will promptly begin to ascend and cannot, in fact, be kept down while water is allowed to flow through it.

"The Brook Trout spawns in the fall, when streams begin to cool, but the eggs do not hatch out until springtime brings higher temperatures. The hatching period lasts from three to six months, according to latitude and altitude. The Brook Trout spawns when two years old. Larger and older fishes deposit from 500 to 2,000 eggs.

Feeds on Insects but May Catch and Eat Small Fishes

"In lakes where there is an abundant food supply, the Brook Trout has in the past been known to reach the rare weight of 10 pounds; but to-day, when thousands of anglers are whipping the Trout streams, a one-pound Trout is a large one. Many good Trout waters have been ruined by the ill-advised introduction of predatory fishes.

"The coloration of the Brook Trout is extremely variable. In some waters the

© *Photograph by E. R. Sanborn, New York Zoological Society*

BROOK TROUT, BEST BELOVED OF MANY LIGHT-ROD FISHERMEN

This fish thrives in cold currents which grosser fishes do not enter. No part of our outdoor heritage is more worthy of conservation than the rapid trout waters of the mountains (See Bulletin No. 5).

fish may exhibit all the brilliancy of which it is capable, while in another watershed not far away it is so dark that but little color is discernible.

"In streams the Brook Trout is largely a feeder on aquatic insects, while in lakes and ponds it feeds much on small fishes. In an aquarium it subsists cheerfully on chopped fish, like the other captives of the tank, and in the average hatchery pond becomes a fat, liver-fed gormand."

Bulletin No. 5, April 15, 1929.

© Photograph by S. N. Leek

PROUD OF HIS CATCH

These are probably "Cutthroat" or Yellowstone Trout, a Rocky Mountain species, which runs larger than the Brook Trout for which President Hoover will fish in Virginia and Maryland.